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Goddard Space Flight Center

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University Aviation Design Competition Winners Named

NASA, the Federal Aviation Administration and the Air Force Research Laboratory (AFRL) have awarded four university teams for their innovative general aviation designs. The winners of the National General Aviation Design Competition were recognized at a ceremony held at AirVenture2001, the Experimental Aircraft Association's Annual Convention and Fly-In at Oshkosh, WI.

The competition calls for individuals or teams of U.S. students to participate in a major national effort to rebuild the U.S. general aviation sector. Participants are challenged to meet the engineering goals of the Advanced General Aviation Transport Experiment (AGATE) project. For the purpose of the contest, general aviation aircraft are typically defined as single or twin engine (turbine or piston), single-pilot, fixed-wing aircraft for two to six passengers.

The first place award was presented to a team from Embry Riddle Aeronautical University, Daytona Beach, FL. The team's design seeks to retrofit the popular Cessna 182 Skylane with a modern, turbo-charged, reciprocating diesel engine that runs on readily available Jet A fuel. The review panel, comprised of representatives from NASA, FAA, industry and academia, praised the design for its practicality and rated the design effort as outstanding overall.

The first place award provides a total of \$3,000 to Embry Riddle's design team members and a \$5,000 award to the university's Aerospace Engineering Program.

Second place honors went to Pennsylvania State University, University Park. The team's design, "Defiance," (below) features a four-



Artist's Concept

place, single engine, turbo fan-powered, general aviation aircraft. The twin-tail-boom, twin-vertical-tail

layout uses both aluminum and modern composite materials, and features advanced aerodynamics, avionics and support systems. The second place award provides a \$2000 prize to the team. Penn State has won a place award in every year of the competition.

The third place award went to the University of Virginia, Charlottesville, for a design dubbed "Vector Evolution." The design combined the fast, high-altitude performance of a business jet with the short takeoff and landing performance of a typical general aviation aircraft. For third place, the team will share a \$1,000 prize.

An honorable mention in the General Aviation Design Competition went to Virginia Tech, Blacksburg, and its collaborating international partner Loughborough University, Leicestershire, United Kingdom, for "Tempus," an aircraft with a 3,600-nautical-mile range. The team set a goal of efficient, affordable and comfortable transportation between international destinations.

The best use of Air Force-developed technologies award was also presented to the University of Virginia's "Vector Evolution" design. The team received an additional \$3,000 from the Air Force Research Laboratory. The technologies included: wireless flight controls; non-hydraulic, electric actuator systems; and aerogel and serrated engine-nozzle-edge noise-reduction techniques.

The competition for the 2000-2001 academic year was managed by the Virginia Space Grant Consortium. The AGATE project will end in September 2001, and the new competition will be managed by the General Aviation Programs Office at NASA's Langley Research Center.

Wallops Shorts.....

On the road

Phil Eberspeaker, NASA Policy and Business Relations Office, staffed an exhibit at the Patuxent River Naval Air Station, Md. for the Uninhabited Aerial Vehicle (UAV) Flight Demonstration Day held July 30.

Hitchhiker Experiments Advancing Technology (HEAT) Aboard STS-105

NASA Goddard Space Flight Center's Hitchhiker Experiments Advancing Technology mission (HEAT) is scheduled to launch aboard Space Shuttle Endeavour on Aug. 9 at 5:38 p.m. The HEAT mission contains the following experiments:

SIMPLESAT: a satellite designed at GSFC to evaluate the use of inexpensive commercial hardware on spacecraft, a demonstration of Global Positioning System altitude and fine pointing control while in a free-flyer Low Earth Orbit.

Advanced Carrier Equipment (ACE): first flight of the newest Hitchhiker carrier avionics system; the power and data interface to the Orbiter electronics.

Space Experiment Module-10 (SEM): SEM is an experiment managed by the Shuttle Small Payloads Projects office at Wallops. SEM is an educational initiative to increase educational access to Space. The SEM canister contains up to 10 small, enclosed modules, each containing a separate, passive experiment designed and constructed by students. The Shuttle Orbiter does not provide power to the SEM. Each module and module controller are powered by an internal battery. The individual controllers command the experiment operations, timelines, and activities.

Get Away Special G-774: a NASA experiment investigating smoldering combustion in a microgravity environment from Marshall Space Flight Center and Glenn Research Center.

UMES Students Have Successful Flight

The University of Maryland Eastern Shore (UMES) Undergraduate Multidisciplinary Earth Science - Airborne Instrumentation Research (UMES-AIR) project was successfully conducted August 1 from Wallops Island.

The student designed and built imaging payload was lofted to an altitude of approximately 2500 feet (760 meters) using a 21-foot tethered blimp and gas/hydraulic winch system. Both the full color and monochrome, with up-link selectable filtering, camera systems returned real-time imagery throughout the flight.

Computer based image analysis will follow leading to a characterization of the area, specifically looking for spectral variations of vegetation, buildings, roads, and ocean reflectance.

Do you have skin cancer?

Years of frequent and prolonged exposure of skin to ultraviolet radiation from the sun results in a variety of changes in the skin. While darker complexion skin may seem to offer greater protection from acute sunburn,



everyone is susceptible to developing skin lesions resulting from the cumulative effects of sun exposure.

Premature skin aging results from chronic ultra-violet radiation making the skin appears coars, thickened and pebbly, with prominent wrinkling and irregular hyper-pigmentation. In more extreme cases, the affected skin may become severely atrophic with irregular loss of pigmentation. It also bruises easily and an increase in the appearance of small, spidery blood vessels.

Skin cancers are the most serious result of chronic sun exposure. These include basal cell carcinoma, squamous cell carcinoma and malignant melanoma.

Malignant melanoma is the least common but, by far, the most dangerous of the skin cancers. A melanoma can quickly invade and/or spread to almost any other tissue in the body. If not diagnosed and treated early, malignant melanoma can result in death within months of appearance.

Look for any changes in an existing mole, especially increase in size or changes in color. A melanoma can appear red (inflammation), white (loss of pigment, usually irregularly, due to attack by the body’s immune system), and blue or black (increased pigmentation from the malignant cells).

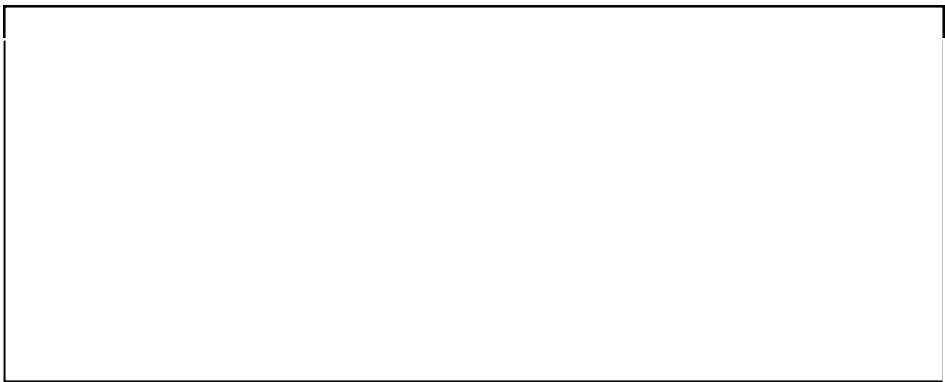
Consult your physician right away if you notice any changes in a pre-existing mole or the sudden appearance of a new mole. Early recognition and surgical removal of superficial lesions usually results in complete cure.

Basal cell carcinomas are the most common of the skin malignancies. These typically appear as a skin sore that does not heal.

Left untreated, basal cell carcinomas will continue to expand in size locally, causing destruction of normal skin structures. This can become permanently disfiguring, especially if structures such as the nose or ears are involved.

Most benign skin lesions will heal within two weeks. If you have a sore that persists, especially if the center is ulcerated, consult your physician. Treatment usually involves surgically removing the involved area of skin.

Squamous cell carcinoma is much more likely than basal cell to spread to distant tissues if not treated early. The lesion may appear initially at a sun-exposed



area of the skin, but may also occur anywhere on the body, including the tongue and lining cells of the mouth, respiratory tract, vagina, etc. The lesions may differ greatly in appearance - it may be a small, red bump or a flattened, warty area. Eventually the lesions ulcerate and begin to invade the underlying tissue.

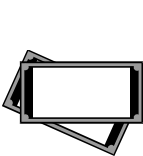
It is not unusual for a squamous cell carcinoma to arise within an area of old scar tissue (such as from a previous burn). Early recognition and surgical removal usually results in complete cure.

Don’t be a statistic, consult a dermatologist today. It generally takes two months to get an appointment. The wait could be fatal.

***Sympathy is extended
to the family, friends,
and co-workers of
H. Dean Price
who died August 5.
At the time of his death,
Price was the associate
chief of the Electrical
Systems Branch.***

New Items at the Wallops Exchange Store

The Wallops Exchange and Morale Association General Manager and Exchange Store Coordinator are working together to bring you the items you want. Stop by and see the new items that are arriving daily.



Check out the new line of cards for all occasions - birthday, get well, retirement, sympathy, and thank you.

The Exchange Store, Building E-2, also has business totes and Pony Tails Taffy.

Coming soon:
Lanyards and retractable badge holders
Wallops Island decals

Call Karen Thornes on x2020 if you have suggestions or specific items you would like to see in the Exchange Store.

Aerobics Club News

The Wallops Aerobics Club will begin a new six-week session for Monday, Wednesday and Friday evenings in the Wallops Gym (Building D-10) on August 10.

Sessions will be from 5 to 6 p.m. on Monday and Wednesday. The Friday session will be from 4:40 to 5:40 p.m.

Come out and join in to stay fit and in shape for your summer and fall activities.

For more information check out the Wallops Aerobics Club web page at: <http://www.wff.nasa.gov/WAC/> or call Annette Conger, x2596, or Jeanette Smolinski, x1512.

Tapes, books and jewels

The Wallops Exchange and Morale Association will hold a used book, cassette tape, CD, video tape and jewelry sale, if there is enough interest.



The sale will be on August 22 in the Building E-2 training room. Tables will be provided.

This sale is only for items listed. Do not bring other items.

All leave regulations apply to employees setting up to sell items. Anyone interested in selling items should contact Terry Ewell on x1133 or by email: Terry.Ann.Ewell.1@gsfc.nasa.gov You may also send her a list of the items you will be selling.

Personnel Profile

Civil Service employees are encouraged to check their “Personnel Profile” and update personal information as necessary.

You may do so by going to the Office of Human Resources home page at: <http://ohr.gsfc.nasa.gov/> and then clicking on “Personnel Profiles” under the Organizational Effectiveness subtitle.

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